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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,597	07/16/2003	Yoshio Kitamura	1081.1055D	6543
21171	7590	03/25/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			PORTKA, GARY J	
			ART UNIT	PAPER NUMBER
			2188	

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/619,597	KITAMURA, YOSHIO
	<b>Examiner</b>	<b>Art Unit</b>
	Gary J Portka	2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on application filed July 16, 2003.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 13-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 13-16 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All   b)  Some \* c)  None of:

1.  Certified copies of the priority documents have been received.
2.  Certified copies of the priority documents have been received in Application No. 08/932,427.
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/16/03, 5/7/04.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_ .  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_ .

**DETAILED ACTION**

1. It is acknowledged that this application is a continuation of US Application 08/932,472.
2. Claims 1-12 were canceled, and claims 13-16 were added by Applicant. Claims 13-16 are pending.

***Information Disclosure Statement***

3. The information disclosure statements (IDS) submitted on July 16, 2003 and May 7, 2004 were considered by the examiner.

***Claim Objections***

4. Claims are objected to because of the following informalities: Claims 13 (line 16) and 15 (line 11) misspell "statues". Claims 13 (line 16) and 16 (line 2) should probably recite "referring to". Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
6. Claims 13-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 13 (lines 16-17) and 15 (line 12) recite "said determined device adapter" which lacks antecedent basis since it is not clear what the determined adapter is (e.g., normal). Claims 14 (line 3) and 16 (line 3) recite "and said plurality of physical disk units"; since disk units were already recited this appears to

state that the logical volume structure stores the disk units. Claim 15 (line 10) recites "said device adapter" which lacks antecedent basis.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 60-205641, in view of JP 3-253933 (pages and lines numbers hereinbelow reference the supplied English translations), or alternatively over JP 60-205641 in view of Judd et al., US Patent 5,768,623.

9. As to claims 13 and 15, JP 60-205641 discloses a *RAID apparatus* (since any multiple disk system with multiple volumes holding identical data may be considered RAID) and *control method comprising*:

a. *plurality of disk units storing a plurality of copies of each of data of logical volumes* (see page 2 lines 19-22 and page 3 lines 6-11 and 24-27), and *disk controller for accessing the disk units at the logical volumes* (required to control disks, and including main memory, CPU, and dual volume control program, see page 3 line 27 to page 4 line 2, and page 4 lines 20-22);

b. *the disk controller including a memory storing number of request operations for each disk, and control means comparing these and selecting the single disk having the least, and thus outputting a request to the single minimum*

*waiting disk unit based upon the comparison* (see page 3 line 27 to page 4 line 13, and page 5 line 5 to page 6 line 8).

JP 60-205641 does not disclose determining normal status of a device adapter from a table. However, JP 3-253933 discloses a table storing various states of disks, including if a write is in progress, and if a disk is in normal working order (see page 8 lines 24-27, page 10 lines 21-27, and page 11 line 25 to page 12 line 6). Thus it teaches an easy method for accounting for and avoiding the attempted use of a disk that is in an abnormal status, and this advantage would have motivated an artisan to implement it in a system such as in JP 60-205641. Since any disk implicitly requires some kind of adapter to interface to a system, the status described hereinabove inherently gives the status of the associated adapter also. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to store and use status for a device adapter, because this is inherently achieved by storing status for a device, which was known to prevent attempted use of a faulty device.

However, assuming that it is argued that an indication of status for a disk is not the same as for a device adapter, Judd teaches an analogous RAID system having redundant adapters for failover. See Judd col. 7 lines 40-49 and col. 8 lines 32-58, where a flag indicates if an adapter is normal. This improves reliability by providing control over redundant adapters. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to store and use a device adapter status, because this was known to improve reliability by providing control over redundant adapters.

10. As to claims 14 and 16, the prior art combination described above discloses the recited logical volume structure and disk management tables storing statuses and number of operations (see JP 60-205641 page 4-6 sections cited above).

***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patent No:

5,872,906 RAID with optimized failure handling.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary J Portka whose telephone number is (571) 272-4211. The examiner can normally be reached on M-F 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571) 272-4210. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Gary J Portka  
Primary Examiner  
Art Unit 2188

March 19, 2005